ABSTRACT OF THE DISCLOSURE

A signal processing system and method. The inventive system includes a first circuit for distributing an input signal between two or more channels in a current mode of operation. A second circuit is disposed in each of the channels for processing the input signal and providing an output signal in response thereto. A third circuit is provided to combine the signals output by the processing circuit. A fourth circuit is included for controlling the first and the third circuits. In a specific illustrative embodiment, the system further includes a radio frequency stage for downconverting a received signal and providing the input signal in response thereto. In the specific embodiment, the first circuit includes a mixing circuit. The mixing circuit includes Gilbert cells and circuitry for providing automatic gain control for each of the channels individually. The Gilbert cells and the automatic gain control circuitry are driven by a transconductance amplifier and therefore operate in a current mode. Differential digital automatic gain control signals are provided in response to a channel select signal from a digital control circuit. The inventive circuit provides multiple IF channels which may be filtered individually. The invention thereby provides wide band operation in a simple, single stage implementation that consumes little power. Further, the current mode thereof is effective in the reduction of insertion loss.